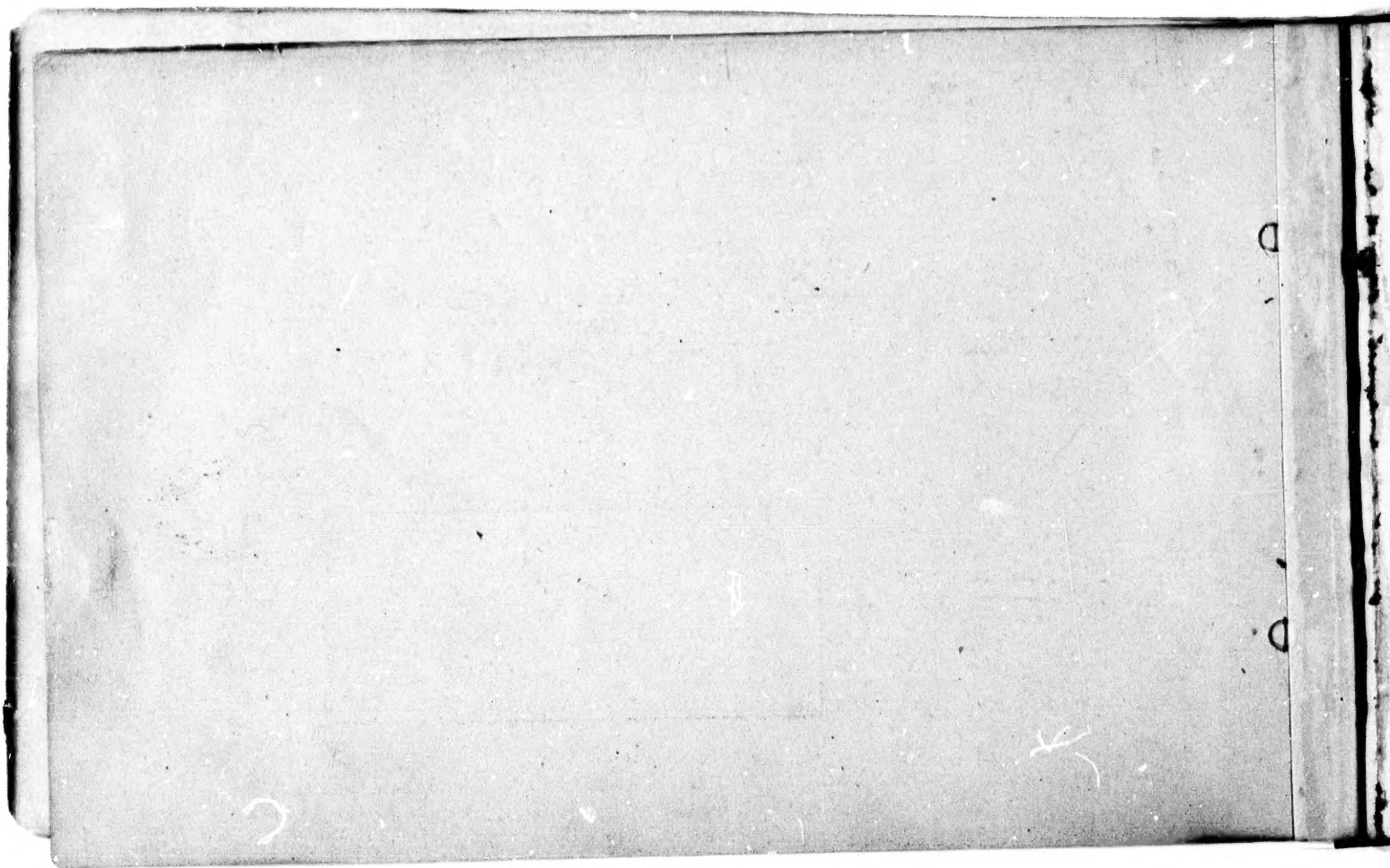


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ILLUSTRATED HISTORY *

• OF THE •

St. Mary's Falls Ship Canal,

Showing the early efforts which were made to secure its construction, its subsequent enlargement and enormous increase in traffic, and the building of a second new lock by the U.S. Government.



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THE EARLY HISTORY OF THE CANAL IS TAKEN FROM MR. WILLIAM CHANDLER'S REPORT TO GOVERNOR CHARLES M. CROSWELL, OF MICHIGAN, MADE IN 1877, WHILE MR. CHANDLER WAS COLLECTOR OF THE CANAL. THE NOTES APPERTAINING TO THE GOVERNMENT WORK HERE HAVE BEEN COMPILED FROM THE OFFICIAL RECORDS.

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THE attention of the people of the State was first publicly called to the importance of securing a ship canal around the rapids at Sault Ste. Marie, by Governor Mason in his message to the Legislature in 1837. This was the first session of the Legislature of Michigan as a State, it having been admitted into the Union in 1836. It was a year or two previous to this that the territory now known as the Upper Peninsula was ceded to Michigan by the General Government, in the settlement of a boundary difficulty between Michigan and Ohio. It is probable, however, that the importance of the canal had been somewhat agitated previous to 1837. Governor Mason had been Secretary and Acting Governor of the Territory several years before its admission as a State, and it seems likely that his attention had been called to the matter during the time of territorial government. Although there is no official record of the fact, it is probable that the agitation of the project was first commenced as soon as the Upper Peninsula was annexed. Governor Mason seemed fully conversant with the subject, for he showed in his message its great importance, and strongly urged the immediate construction of the canal. The Legislature acted favorably upon this recommendation, and on March 21, 1837, an act was approved by the Governor authorizing a survey to be made, providing for maps, profile, etc., to be made, together with an estimate of the cost of construction. Twenty-five thousand dollars was appropriated by the act to cover the expense to be incurred. Under the provisions of this law Governor Mason appointed John Almy engineer to make the survey, plans and estimates. In the legislative proceedings, by which this was accomplished, Henry A. Lavake, of Chippewa County, took a leading part.

During the summer of 1837 Judge Almy completed his surveys,

and reported to the Governor the plans for a canal and two locks of the following dimensions: width of canal, 75 feet; depth, 10 feet; width of locks, 32 feet; length, 100 feet. Estimated cost, \$112,544.

In 1838 Governor Mason again called the attention of the Legislature to the subject, placing before that body the plans and estimated cost. He urged upon the Legislature the importance of taking such action as would insure the completion of the canal that year. That body subsequently made an additional appropriation of \$25,000 to be applied to its construction, "provided Congress did not at its present session make an appropriation for that purpose." This act became a law by the approval of the Governor April 5, 1838.

Congress made no appropriation; therefore, on the 7th day of September, 1838, a contract was entered into in the city of Detroit, with Messrs. Smith & Driggs of Buffalo, N. Y., to construct the canal. The season being too far advanced to admit of doing much before the close of navigation, the commencement of the work was deferred until the following spring.

Again, in 1839, the Governor urged upon the Legislature, in his message, the necessity of a speedy construction of the work. This resulted in the passage of an act which became a law April 19, 1839, authorizing an advance to be made to the contractors by the Commissioners of Internal Improvement. This board consisted of Edwin H. Lathrop, president; Hiram Alden, auditor; Levi S. Humphrey, Lansing B. Miner, James B. Hunt, Wm. A. Burt and Rix Robinson, acting commissioners for the Sault Ste. Marie canal.

Early in May, 1839, the contractors proceeded to the Sault and commenced work by filling up a government mill race, located

upon the military reservation. The post commander, having been previously instructed upon this point, ordered the contractors to desist; but they refused to comply, and continued work until the 13th of May, when Lieut. Rood, at the head of his command, forcibly ejected them from the ground. This act, of course, necessitated the abandonment of the work. There was actually expended upon the work, as reported by Commissioner Robinson:

By John Almy, engineer	\$1,152 27
Wages and traveling expenses	724 29
Total	\$1,876 56

By a joint resolution, approved March 27, 1840, the Legislature of Michigan protested against this high-handed act of the United States, and demanded reparation for expenses and loss to the State, in thus preventing an attempt to improve the navigation of waters leading to a territory so recently forced upon her and brought within her jurisdiction. States' rights not prevailing at that time, this act of the Legislature proved of no avail.

But the attempt to secure the construction of the canal was not allowed to rest here. The same Legislature adopted a memorial to Congress, which was approved March 30th, 1840, in which the importance of the speedy construction of the canal was fully set forth, on account of the great wealth of the country in copper, iron, fisheries, furs, pine, timber, and the value of the land for agricultural purposes. The memorial closed by asking money or lands to aid in its construction. Hon. Samuel Ashman, member of the Legislature from Chippewa county, took a deep and active interest in the matter, and acted as chairman of the select committee which prepared the memorial above referred to. Hon. John Norvell, Senator from Michigan, responded to the request of the Legislature, and immediately on receipt of the memorial, presented it to

Congress, and introduced a bill providing for a grant of 100,000 acres of land to aid in the construction of the canal. The bill was defeated. Among those who opposed it was Henry Clay, who, in a speech against it, referred to it as "a work beyond the remotest settlement in the United States, if not in the moon." What would Henry Clay say to-day if he could see the millions of dollars in mining products, in wheat, lumber and fish, which annually pass over Lake Superior, and through the canal at the Sault?

Thus the matter rested until the meeting of the Legislature in 1843. On January 24 a joint resolution passed that body, asking Congress for an appropriation for the construction of the canal. Copies of this action were sent to the Legislatures of New York, Pennsylvania, Ohio, Illinois and Wisconsin, and asking their co-operation in the enterprise. Similar resolutions were passed January 27, 1844, and March 9, 1848, which shows that although their efforts had not met with success, the friends of the enterprise, even after ten years of continuous labor, were not yet discouraged.

In 1849, Hon. John Ingersoll, Representative in the Legislature from Chippewa County, and Hon. Jonathan P. King, from Mackinaw, took hold of the matter again, and secured the passage of a joint resolution by the Legislature asking Congress to appropriate \$500,000 in money for the construction of the canal. Still Congress took no favorable action. Hon. John Bacon, of Chippewa County, and Hon. E. J. Roberts, of Houghton County, were members of the Legislature of 1851, and working together secured the passage of a similar joint resolution, which was approved March 30, calling upon the General Government for \$500,000 for the canal. This was sent to the Legislature of all the States interested, and their co-operation solicited.

During these years of controversy the immense wealth of the northern peninsula was becoming known. The copper interest had developed into a magnitude before unheard of. The iron ore

deposits had become known as almost inexhaustible. Instead of having a canal to hasten and assist in the development of the country, as its friends in the beginning had hoped, the rapid growth of the resources of the country was beginning to attract the attention of the people to the absolute necessity of a ship canal to facilitate and cheapen transportation. The plank and tram road transfers at the Sault could no longer fill the demands of trade. The few faithful ones who had worked so long, though unavailingly, in behalf of the enterprise, were alone no longer. Large numbers were now interested, and everywhere took hold of the matter with an earnestness that had never before been manifested, and urged upon Congress the great importance of a canal in a national as well as a commercial point of view. All this looked encouraging for the success of the enterprise in the near future. Hon. John Burt, who had from the first taken a deep interest in the enterprise, about this time put his shoulder to the wheel. Through his efforts others were interested, and induced to contribute their time and money to aid the great work. Capt. Eber B. Ward, then most prominently known as a steamboat king, and Sheldon McKnight, another steamboat man, about this time became especially active. Among others who deserve mention in this connection were Abner Sherman, Simon Mendelbaum, Wm. L. Stephens, Samuel W. Hill, Heaman B. Ely, Peter White, and J. Vernon Brown, who was editor of the *Lake Superior Journal*, published at the Sault. The people generally at the Sault were rather indifferent than otherwise, but there were exceptions, among whom were Samuel Ashman, P. B. Barbeau, S. R. Wood and several others.

Preparations were made to carry the matter before Congress in a manner never done before. To this end a self-constituted committee (lobby it might be called in these days), consisting of Hon. John Burt, Capt. E. B. Ward, Sheldon McKnight, Abner Sherman, Simon Mendelbaum, D. S. Cash, Wm. Willard, E. C. Roberts,

Wm. A. Pratt and J. Vernon Brown, spent most of the winter of 1851 and 1852 in Washington, for the purpose of influencing legislation favorable to the canal. The stock in trade of these gentlemen consisted of specimens of copper and iron ore, and their individual influence with members of Congress. Public sentiment was influenced to as great an extent as possible by Mr. Brown by articles in his paper, copies of which were sent to all the members of Congress, and to the different Legislatures whose aid it was desirable to secure. It was made to appear that the work was one of great national importance, besides its commercial value. During this memorable contest Mr. Burt's room was headquarters for this enterprise. Here Mr. Brown's articles were written; here were memorials prepared, sent to the State Legislatures intended to be passed by them, and then sent to their members of Congress. The copper and iron specimens had a powerful effect with the committee which had the matter in charge. The result of all this influence was the introduction of two bills in Congress upon the subject—one providing for \$500,000 in money, and the other for 500,000 acres of land, for the construction of the canal. The opposition of the Southern members of Congress, who then controlled affairs, to government appropriations for internal improvements, rendered the passage of the money bill impossible. All efforts were then turned to the land bill. Enough of them were found, however, who would vote government land to the State to aid in the construction of the canal to pass the bill, which had in the meantime been raised to 750,000 acres. This bill was approved by the President August 26, 1852. Much valuable aid in carrying this measure through Congress was rendered by Gen. Cass, Gov. Felch and James L. Conger.

Thus it was only after fifteen years' almost constant labor that the project was considered of enough importance to merit government aid. But even then the promoters of the enterprise felt far from

satisfied. They felt no assurance that the work could be done with the land within any reasonable time. Hon. Truman Smith of Connecticut openly declared that the canal could not be constructed in ten years, if ever, with this grant. Mr. Brown returned to the Sault, and published a very discouraging article regarding the prospects. Mr. Burt was about the only person who had faith. He replied warmly to Mr. Brown's article, and predicted the completion of the canal within two years.

Immediately on the passage of the act by Congress making the appropriation of land, Governor McClelland, in order to hasten the work of construction, addressed a letter to the Secretary of War, requesting him to make an immediate survey of the proposed canal. For the want of a specific appropriation for this purpose the request was not complied with. The Governor then secured the services of Capt. Canfield, United States Topographical Engineer, to make the survey. It was proceeded with at once, that the Governor might lay the matter before the Legislature which convened the coming winter. If this was not done the matter would have to lay over two years, or a special session of the Legislature be called. The success of the enterprise was still upon uncertain ground. To secure proper legislation and prompt action, Mr. Burt again set to work, and with the aid of friends, secured the nomination of his father, Mr. W. A. Burt, as a candidate for the Legislature from Macomb county. So great was the confidence of the people in this gentleman that no opposing candidate was put in the field. A short time before the election, Hon. Heaman B. Ely proceeded to the Sault, and by his energy and force of character secured the nomination to the Legislature from Chippewa County (Marquette County being at that time attached to Chippewa), and remained on the ground and secured his own election. His election, however, was contested, but he was admitted to his seat. These gentlemen were considered champions of the canal.

The survey was completed before the meeting of the Legislature, and Gov. McClelland incorporated it into his message to that body. The plan for the canal and locks submitted was substantially the same as provided for by the act of Congress appropriating the land, except that, at the urgent request of Lake Superior men, the locks were made 300 instead of 250 feet in length. Hon. W. A. Burt was made chairman of the legislative committee to which the canal matters were referred. At one time during the session of this Legislature it seemed as though the whole canal project would fail, not because of a lack of friends, but on account of the great diversity of plans and schemes which were brought forward, and which were earnestly championed by their several projectors. However, by the energy and general good tactics of the gentlemen named above, an act was passed and approved by the Governor February 5, 1853, and one supplementary thereto, approved February 12th, 1853, by which the Governor was authorized to appoint commissioners to contract for the construction of the canal upon the basis of the plans presented. In pursuance of the provisions of this act the Governor appointed Chauncey Joslyn, Henry Ledyard, John P. Barry, Shubael Conant and Alfred Williamson as Commissioners.

Thus successfully ended sixteen years of labor to secure the construction of St. Mary's Falls Ship Canal. Nothing more was necessary but to secure its construction for the compensation the State had to offer. The Commissioners entered immediately upon the discharge of their duties, and on April 5, 1853, entered into a contract with Joseph Fairbanks, J. W. Brooks, Erastus Corning, August Belmont, H. Dwight, Jr., and Thomas Dyer as principals, and Franklin Moore, Geo. F. Porter, John Owen, James F. Joy and Henry P. Baldwin as sureties, for the construction of the canal. The contractors agreed to construct it and defray all expenses connected with the work, for the land appropriated by Congress, 750,000 acres. They also agreed to complete the canal within two

years. In making the contract the Commissioners made some very important changes in the plans, which increased the capacity of the locks very materially. The contract as entered into provided for the construction of two consecutive locks 350 feet long, 70 feet wide, and 12 feet depth of water; this, however, was afterwards increased to 13 feet. The canal was to be 100 feet in width. The estimated cost was \$557,739.

Under the act of the Legislature of the State of New York, approved April 12, 1853, the St. Mary's Falls Ship Canal Company was organized. The officers of the company were Erastus Corning, president; James W. Brooks, vice president; J. V. L. Pryor, Joseph Fairbanks, John M. Forbes, John F. Seymour and James F. Joy. On the 25th of August, 1853, the original contract was formally assigned to this company.

On the 4th of June, 1853, ground was broken by Mr. Chas. T. Harvey, by the use of a spade in his own hands, and the great work was commenced which would open up the immense wealth of the Upper Peninsula to the commerce of the world. The work was prosecuted with vigor under the personal supervision of Mr. Chas. T. Harvey, who was superintendent of construction.

On the 21st of May, 1855, a certificate of the completion of the work was signed by Kinsley S. Bingham, Governor, Shubael Conant, Chauncey Joslin, Henry Ledyard and Alfred Williams, and filed with the Commissioner of the State Land Office May 24, 1855. A certificate to the same effect was also made and signed by John T. Clark, engineer, May 21, and filed on May 24. The lands had been approved to the State by the General Government, and on the 25th of May, 1855, they were patented by the State to the St. Mary's Falls Ship Canal Company. The actual cost of the canal was \$999,802.46.

The near completion of the canal rendered some action necessary by the Legislature of 1855 to provide for its management. An act

was approved February 12, 1855, by which the Governor was authorized to appoint a superintendent, who should have local charge of the canal. The same act also provided that the Governor, Auditor General and State Treasurer should constitute a Board of Control of the canal, and should have general charge of the canal and its workings. On the 12th of February, 1855, the same day the act was passed, the Governor very fittingly appointed John Burt, Esq., as superintendent, his term of office commencing on the 1st of April following.

On the 19th of April, 1855, water was first let into the canal. On the 18th of June following, Mr. Burt had the pleasure of seeing the culmination of the great work, to secure which he had for so many years been one of the chief leaders. On that day he had the honor, of passing the first boat through the locks,—the steamer Illinois Capt. Jack Wilson, commander. The great lakes were connected and a new era in the commerce of Lake Superior inaugurated. The delay in passing boats from the time of the completion of the canal until the time above named, was caused by the discovery of a weakness in the embankment on the north side of the canal, which required some additional work. In his report of November 30, 1856, the Superintendent recommended the strengthening of this embankment by the construction of a wall upon the outside of it and widening it, extending the north pier at the upper end, and removing obstructions at the lower end. For the money necessary to do this he recommended that an application be made to Congress. In the same report he also recommended the free passage of tugs, legislation to enforce reports from captains of vessels as to cargoes, and that reports of Superintendent be made to the Governor, etc. Governor Bingham in his message called the attention of the Legislature to this report, and legislation was made accordingly. Congress was memorialized for aid to make the needed improvements, but without avail. In consideration of this

failure, by request of Governor Bingham, the Superintendent the following season made a special report upon the condition of the canal, showing its urgent needs. On December 12, 1857, the Governor called an extra session of the Legislature to take this matter, and some others requiring legislative action, into consideration. In his message to the Legislature on January 12, 1858, he laid the matter before that body. During the season just passed breaks of an alarming character had occurred in the north bank. Acting upon this report the Legislature passed a joint resolution, which the Governor approved February 1, 1858, requesting our members of Congress to obtain, if possible, an appropriation of \$50,000 for this purpose; all, however, to no effect.

In 1858, Mr. E. Calkins, who was then Superintendent, again called attention to the necessity of these improvements. All efforts to secure aid from Congress having failed, the Legislature of 1859, realizing the importance of the work, passed an act, which was approved February 14, 1859, which authorized the Governor and State to make a loan of \$100,000 by issuing the bonds of the canal. The principal and interest were guaranteed by the State, but they were to be paid from the canal fund.

Under this law the loan was negotiated and the amount, \$100,000, passed, it was supposed into the hands of the State Treasurer, John McKinney, but only one-half of it ever came to light, and Mr. McKinney had to suffer incarceration in the State Prison in expiation of somebody's crime. He remained in prison until near his end when he was pardoned out to die, but he never told what became of the money. However the best that could be done must be with the \$50,000 remaining. On the 7th of June, 1859, the Board of Control entered into contract with Silas M. Holmes of Detroit, and Nelson W. Clark of Oakland County, to make the necessary repairs, plans and specifications for which had been made and were attached to the contract. This contract was filed with the

Secretary of State July 6, 1859. The work of strengthening the canal bank was entered upon and completed that year, while the rest of the work contracted for was completed the following year.

From that time until the present the history of the canal has only been similar to any other well regulated institution. The benefits which have accrued to the State through its influence are beyond calculation. The business has increased year by year, until now the amount of traffic which annually passes through it is immense. The expenses of operation and repairs have been maintained at a cost not beyond the revenue of the canal arising from tolls. The interest on the bonds has been paid, and the bonds paid and provided for. Still the great increase in business has permitted the reduction of tolls from 6½ cents per registered ton to 3 cents, the law providing that the tolls should only create a sufficient revenue for these purposes.

During the year 1876, some irregularities were discovered in the accounts at the canal office, and soon afterwards the clerk, Mr. S. B. W. Coval, left suddenly, and it is charged that he took upwards of \$1,000 canal money with him. He was afterwards arrested, tried during the summer of 1878, before the Circuit Court of Chippewa County and acquitted. This led to an investigation of the canal affairs by the Legislature of 1877, and at the suggestion of Governor Croswell, a revision of the laws governing the canal. The local management, which had up to this time rested entirely with a Superintendent, was by this revision vested in a Superintendent and a Collector of Tolls, the canal proper being left under the supervision of the Superintendent, while the entire financial affairs of the canal were placed under the charge of the Collector. Governor Croswell appointed William Chandler of Cheboygan, to the newly created office, the appointment dating May 21, 1877. Mr. Chandler assumed the duties of the position May 27.

Although the canal as constructed was nearly four times as large

as was contemplated by its first projectors in 1837, so rapidly under its influence did the Northern Peninsula, and the great north and west tributary to Lake Superior and this great channel of commerce, develop and expand, that hardly had a dozen years elapsed before it became apparent that some action must soon be taken looking to an increase in the capacity of the canal and locks. Not only had the commerce passing the canal increased at an astonishing rapidity, but the size of the vessels had also correspondingly increased. Vessels could not pass the locks carrying anywhere near their capacity. The mining interests of the Northern Peninsula, which had been given a stimulus by the completion of the canal, had grown to such vast proportions, that they had absorbed money and business ability from almost every section of the country. Therefore nearly all parts of the country had almost a personal interest in this great work. Superintendent George W. Brown, in his report for 1864, spoke of the necessity of enlarging the capacity of the locks, and recommended that another set of locks be constructed, giving as reasons that it would cost very little more and would be much better. In 1867, Mr. Guy H. Carleton, then Superintendent of the canal, called attention to necessity of deepening and enlarging the canal and locks, giving the reasons therefor. Again, in his report for 1868 the subject was mentioned, and the suggestion made that the General Government be applied to for the means necessary. The time for definite action seemed to have arrived during the winter of 1868-9. As when the canal project was first inaugurated, Hon. John Burt was found among the leaders of this enterprise. He publicly advocated the deepening of the locks during the winter months, that navigation might not be obstructed. He perfected plans for the work and submitted them to Governor Crapo, the retiring, and Governor Baldwin, the incoming, governor. This resulted in the attention of the Legislature being called to the necessity of the work, and the passage by that body, February 16,

1869, of a joint resolution urging the importance of the work upon Congress. Mr. Burt personally laid the matter before the members of Congress. He soon ascertained the prevalent opinion among them was that nothing could be done, in consequence of the canal being under State control. Mr. Burt then returned to Detroit and laid the situation of affairs before the Board of Trade of that city. As a means of securing the sought for end, that body took action in favor of the transfer of the canal to the United States. This was followed by petitions and memorials from the principal lake cities, requesting for like reasons the proposed transfer. Acting upon the showing thus presented, the Legislature passed a joint resolution, March 27, 1869, authorizing a transfer of the canal to the United States. The work of placing this enterprise before Congress was not permitted to flag. All the States interested sent memorials to Congress in behalf of the project. The business and resources of the great Lake Superior district were placed before Congress in a statistical form. This was prepared chiefly by Mr. H. A. Burt, of Marquette, and had a large influence in shaping future legislation. The initiative in Congress of this movement was made by Hon. O. D. Conger, March 14, 1870, by the introduction of a resolution requesting the Secretary of War to have General Cram, then in charge of the river and harbor improvements of the great lakes, make a report on the importance of this work, upon a basis of 14 feet draft of water; the expense to be defrayed from appropriations already made for surveys of rivers and harbors. This resolution was passed April 4. Before General Cram had time to comply with the law he was superseded by General O. M. Poe, upon whom the work devolved. However, before this report was made, the entering wedge was secured by an act of Congress, approved July 11, 1870, appropriating \$150,000 for the improvement of St. Mary's Falls Ship Canal, and this without accepting the proposition of the State to transfer the canal to the General Government.

September 20, 1870, General Poe having completed his examination, made a report to the Secretary of War, in which he not only sustained all the claims which had been made regarding the importance of the proposed improvement, but went even further, and claimed that the demands of commerce would warrant the construction of a new lock or set of locks, as might be decided upon. He also stated that \$140,000 out of \$150,000 appropriated, could be immediately expended. General Poe proceeded at once to prepare plans for two locks. After much consultation the plans were finally changed, and one for a single lock substituted. It is stated that Mr. Burt was first to advocate the single lift, and that it was largely through his influence that the present plan was adopted. From the preliminary survey to the completion, the local charge of the work was in the hands of Mr. Alfred Noble, assistant engineer, to whom much credit is due for the admirable manner in which the work was done. The general plans of the work were completed during the administration of General Poe. General Weitzel succeeded General Poe May 1, 1873. General Weitzel was then at the head of the work, and took a deep and permanent interest in the enterprise, and from the first, showed his determination to make this the greatest and most complete engineering enterprise of the age. These efforts were ably seconded by Mr. Noble.

The first contract upon the improvement was let October 20th, 1870, to Messrs. Barker, Williams & Bangs, and work first commenced soon after that date. Eight subsequent contracts were let for different portions of the work, to the following contractors: Barker & Williams, Boyle & Roach, C. C. Barker & Son, Henry Van Vleck and C. S. Barker. The first stone in the walls of the new locks was laid July 25, 1876, with appropriate ceremonies, consisting of an address by General Weitzel, oration by H. P. Davock, and remarks by Hon. Geo. W. Brown and Hon. H. W.

Seymour. The president of the day was Peter B. Barbeau, with numerous vice-presidents.

The United States Government began its improvement of the canal in 1870. In consequence of legislation by Congress in the river and harbor act of June 14, 1880, and the act passed by the Legislature of Michigan, approved March 3, 1881, the canal was actually transferred to the United States Government on June 9, 1881. The lock of 1870 was completed and opened to navigation September 1, 1881. The first boat locked through was the Steamer City of Cleveland (now the City of Alpena), of the Detroit & Cleveland Steam Navigation Company's line.

The total amount appropriated for the work, up to the time of completion of the lock now in operation, at different times, was \$2,405,000. The total cost of the canal improvement and lock was \$2,150,000, the balance of the appropriation being used in the St. Mary's river.

The length of the canal is 7,000 feet. Its width is variable. The least width is 108 feet, at the point opposite the movable dam. Depth of water, when Lake Superior is at its average height, 16 feet.

The chamber of the present lock is 515 feet long, 80 feet wide narrowed to 60 feet at the gates; the depth is 39½ feet. Its capacity is 1,500,000 cubic feet. The lift of the lock is 18 feet, the depth of water on the miter-sills, when the water of the great lakes is at its average depth, is 17 feet. A guard-gate is placed at each end of the chamber, making the length of the walls 717 feet.

The walls for 14 feet from each end are 13 feet wide from top to bottom; then for 121¾ feet at the west end and 133¾ feet at the east end they are 25 feet wide from top to bottom. Between the wide walls the width is 18 feet for 10 feet up from the foundation, then it narrows in 2 feet for 4 offsets 5 feet apart, vertically, until

Statement of the Commerce Through

YEAR.	Sailing Vessels.	Steamers.	Unregistered Craft.	Total Passengers.	Total Lockages.	TONNAGE.	
						Registered.	Actual Freight.
1855	a	a	b	a	c	106,296	c
1856	a	a	b	a	c	101,456	c
1857	a	a	b	a	c	180,829	c
1858	a	a	b	a	c	219,819	c
1859	a	a	b	a	c	302,642	c
1860	a	a	b	a	c	403,067	c
1861	a	a	b	a	c	276,039	c
1862	a	a	b	a	c	339,612	c
1863	a	a	b	a	c	507,434	c
1864	1,045	366	b	1,411	c	571,438	c
1865	602	395	b	997	c	409,062	c
1866	555	453	b	1,008	c	458,530	c
1867	539	466	b	1,005	c	556,899	c
1868	817	398	b	1,155	c	432,583	c
1869	939	369	b	1,338	c	524,865	c
1870	1,397	431	b	1,828	c	690,826	c
1871	1,064	573	b	1,637	c	752,101	c
1872	1,819	702	b	2,004	c	914,735	c
1873	1,549	969	b	2,517	c	1,204,448	c
1874	833	901	b	1,734	c	1,070,857	c
1875	669	1,464	b	2,033	c	1,259,834	c
1876	694	1,733	b	2,417	c	1,541,676	c
1877	1,401	1,099	b	2,451	c	1,439,216	c
1878	1,061	1,476	b	2,567	c	1,667,136	c
1879	1,403	1,618	100	3,121	c	1,677,071	c
1880	1,718	1,735	60	3,603	c	1,734,890	c
1881	1,706	2,117	161	4,004	2,139	2,092,757	1,567,741
1882	1,663	2,739	372	4,774	2,572	2,498,068	2,029,591
1883	1,456	2,620	237	4,315	2,351	2,412,259	2,267,106
1884	1,709	3,609	371	5,689	3,074	2,997,837	2,874,557
1885	1,689	3,354	337	5,380	2,863	3,035,937	3,266,626
1886	2,534	4,884	306	7,424	3,593	4,219,397	4,527,759
1887	2,562	5,968	625	9,355	4,165	4,897,698	5,409,649
1888	2,009	5,305	489	7,803	3,545	5,130,609	6,411,423
1889	2,635	6,501	443	9,579	4,694	7,221,935	7,516,022
1890	2,373	7,268	417	10,557	4,970	8,454,435	9,041,213
1891	2,405	7,339	447	10,191	4,981	8,400,685	8,888,759
1892	3,324	8,737	519	12,690	5,987	10,647,203	11,214,333

a No record kept until 1864.
b No record kept until 1879.

c No record kept until
d None shipped from

General Poe having completed his report to the Secretary of War, sustained all the claims which had the importance of the proposed improvement, and claimed that the demands of the construction of a new lock or set of locks upon. He also stated that \$140,000 could be immediately expended. General Poe prepared plans for two locks. After the plans were finally changed, and one for a single lock. It is stated that Mr. Burt was first to be adopted. From the preliminary survey in charge of the work was in the hands of General Poe, to whom much credit is due in which the work was done. The general completed during the administration of General Poe May 1, 1873. General Poe at the head of the work, and took a deep interest in the enterprise, and from the first, showed that this was the greatest and most complete of the age. These efforts were ably seconded.

The improvement was let October 20th, 1873, to Williams & Bangs, and work first commenced. Eight subsequent contracts were let for the work, to the following contractors: Messrs. Williams & Bangs, C. C. Barker & Son, Henry J. Roach, The first stone in the walls of the lock was laid May 25, 1876, with appropriate ceremonies, by General Weitzel, oration by H. P. Brown and Hon. H. W.

Seymour. The president of the day was Peter B. Barbeau, with numerous vice-presidents.

The United States Government began its improvement of the canal in 1870. In consequence of legislation by Congress in the river and harbor act of June 14, 1880, and the act passed by the Legislature of Michigan, approved March 3, 1881, the canal was actually transferred to the United States Government on June 9, 1881. The lock of 1870 was completed and opened to navigation September 1, 1881. The first boat locked through was the Steamer City of Cleveland (now the City of Alpena), of the Detroit & Cleveland Steam Navigation Company's line.

The total amount appropriated for the work, up to the time of completion of the lock now in operation, at different times, was \$2,405,000. The total cost of the canal improvement and lock was \$2,150,000, the balance of the appropriation being used in the St. Mary's river.

The length of the canal is 7,000 feet. Its width is variable. The least width is 108 feet, at the point opposite the movable dam. Depth of water, when Lake Superior is at its average height, 16 feet.

The chamber of the present lock is 515 feet long, 80 feet wide narrowed to 60 feet at the gates; the depth is 39½ feet. Its capacity is 1,500,000 cubic feet. The lift of the lock is 18 feet, the depth of water on the miter-sills, when the water of the great lakes is at its average depth, is 17 feet. A guard-gate is placed at each end of the chamber, making the length of the walls 717 feet.

The walls for 14 feet from each end are 13 feet wide from top to bottom; then for 121½ feet at the west end and 133½ feet at the east end they are 25 feet wide from top to bottom. Between the wide walls the width is 18 feet for 10 feet up from the foundation, then it narrows in 2 feet for 4 offsets 5 feet apart, vertically, until

Statement of the Cost

YEAR.	Sailing Vessels.	Steamers.	Unregistered Craft.	Total Passengers.	Total Lockages.
1855	a	a	b	a	c
1856	a	a	b	a	c
1857	a	a	b	a	c
1858	a	a	b	a	c
1859	a	a	b	a	c
1860	a	a	b	a	c
1861	a	a	b	a	c
1862	a	a	b	a	c
1863	a	a	b	a	c
1864	1,065	366	b	1,411	c
1865	602	395	b	997	c
1866	555	453	b	1,008	c
1867	539	466	b	1,005	c
1868	817	338	b	1,155	c
1869	930	369	b	1,338	c
1870	1,397	441	b	1,828	c
1871	1,064	573	b	1,637	c
1872	1,312	792	b	2,004	c
1873	1,549	901	b	2,517	c
1874	833	901	b	1,734	c
1875	869	1,464	b	2,033	c
1876	694	1,733	b	2,417	c
1877	1,401	1,069	b	2,451	c
1878	1,061	1,476	b	2,567	c
1879	1,403	1,618	100	3,121	c
1880	1,718	1,736	50	3,503	c
1881	1,706	2,117	181	4,004	2,120
1882	1,663	2,739	372	4,774	2,572
1883	1,458	2,620	237	4,315	2,351
1884	1,709	3,609	371	5,689	3,074
1885	1,680	3,354	337	5,380	2,863
1886	2,534	4,584	306	7,424	3,593
1887	2,662	5,968	625	9,355	4,165
1888	2,009	5,305	489	7,803	3,845
1889	2,635	6,591	443	9,579	4,684
1890	2,874	7,288	417	10,579	4,970
1891	2,406	7,339	447	10,191	4,981
1892	3,324	8,737	519	12,580	5,967

a No record kept until 1864.
b No record kept until 1870.

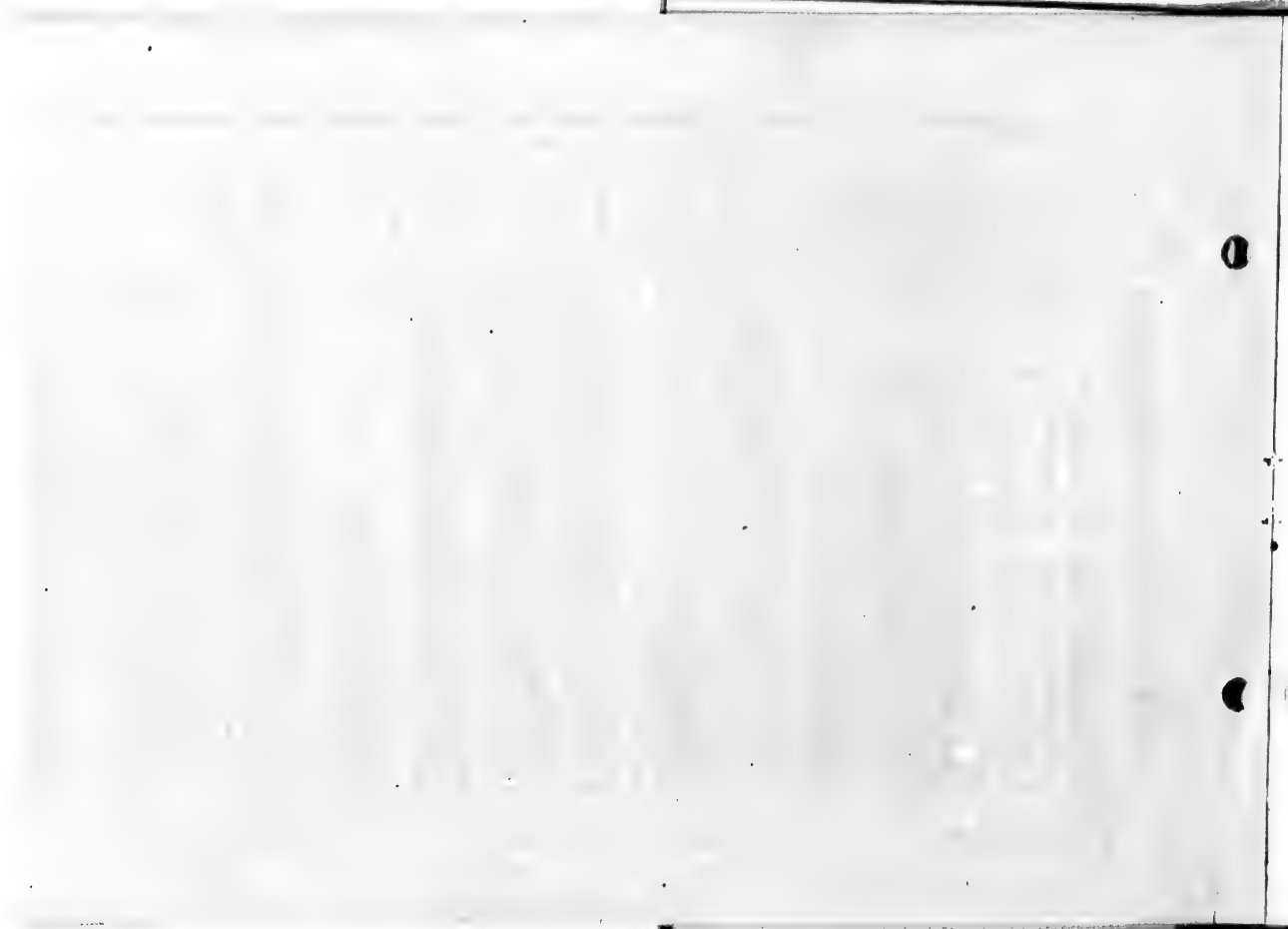
Statement of the Commerce Through Saint Mary's Falls Canal for each Calendar Year from its Opening in 1855 to and including 1892.

Steamers.	Unregistered Craft.	Total Passengers.	Total Lockages.	TONNAGE.		Passengers.	Coal.	Flour.	Wheat.	Grain—other than Wheat.	Manufactured and Pig Iron.	Salt.	Copper.	Iron Ore.	Lumber, R. M.	Silver Ore and Bullion.	Building Stone.	Unclassified Freight.	Date of Opening.	Date of Closing.
				Registered.	Actual Freight.															
							Tons.	Barrels.	Bushels.	Bushels.	Tons.	Barrels.	Tons.	Tons.	Fest.	Tons.	Tons.	Tons.		
a	b	a	c	106,296	e	4,270	1,414	10,289	e	1,040	587	3,196	1,417	126,000	d	e	f	June 18	Nov. 23	
a	b	a	c	101,456	e	4,674	3,988	17,686	e	33,908	781	464	5,727	385,000	d	e	f	May 4	Nov. 28	
a	b	a	c	180,820	e	6,650	5,278	16,660	e	22,300	1,325	1,500	5,760	26,184	d	e	f	May 9	Nov. 30	
a	b	a	c	219,819	e	9,230	4,118	13,782	e	10,500	2,597	950	6,144	31,035	d	e	f	Apr. 18	Nov. 20	
a	b	a	c	352,642	e	8,884	30,450	80,250	e	71,738	5,004	2,737	7,247	65,769	d	e	f	May 3	Nov. 28	
a	b	a	c	403,657	e	8,516	11,507	22,743	e	133,437	4,194	3,014	7,645	120,063	d	e	f	May 11	Nov. 26	
a	b	a	c	276,639	e	8,468	11,340	17,291	e	70,830	2,477	6,881	44,836	130,000	d	e	f	May 3	Nov. 14	
a	b	a	c	359,612	e	18,231	31,975	59,062	e	69,062	6,681	1,506	1,044	113,014	d	e	f	Apr. 27	Nov. 27	
a	b	a	c	507,434	e	16,985	11,292	33,937	e	78,480	7,643	1,776	5,331	181,567	d	e	f	Apr. 28	Nov. 24	
366	b	1,411	c	571,438	e	16,985	11,292	33,937	e	143,560	7,643	1,776	5,331	2,001,000	d	e	f	May 2	Dec. 4	
395	b	907	c	469,062	e	19,777	34,983	80,250	e	7,346	3,175	9,935	147,459	822,000	d	e	f	May 1	Dec. 3	
453	b	1,008	c	468,830	e	19,915	33,903	83,003	e	229,026	4,464	9,950	158,102	144,000	d	e	f	May 5	Dec. 3	
466	b	1,305	c	566,899	e	15,120	22,927	28,345	e	249,031	30,402	5,316	10,685	222,861	d	e	f	May 4	Dec. 3	
339	b	1,155	c	432,563	e	10,590	25,814	27,372	e	285,123	22,785	4,824	12,229	191,939	d	e	f	May 2	Dec. 3	
369	b	1,336	c	524,885	e	17,657	27,851	32,007	e	323,501	23,851	5,910	18,662	230,368	d	e	f	May 4	Nov. 29	
431	b	1,828	c	690,826	e	17,153	15,952	33,548	e	49,700	304,077	42,950	11,099	409,850	722,000	92	2,917	Apr. 29	Dec. 1	
573	b	1,637	c	752,101	e	16,859	46,798	26,060	e	1,376,705	38,923	54,084	36,199	14,562	1,072,070	464	5,228	May 8	Nov. 29	
573	b	2,004	c	914,735	e	26,830	80,815	136,411	e	567,134	86,194	42,680	14,691	383,105	1,742,000	306	5,213	May 11	Nov. 26	
573	b	2,517	c	1,204,446	e	30,966	96,780	172,692	e	2,119,997	309,615	44,920	29,335	15,927	1,162,000	580	2,318	May 5	Nov. 18	
901	b	1,734	c	1,070,857	e	22,058	61,123	179,855	e	1,320,015	149,099	31,741	42,231	15,346	423,058	838	401	May 12	Dec. 2	
1,464	b	2,033	c	1,256,874	e	19,685	101,260	309,991	e	250,090	54,381	43,989	18,396	493,406	5,391,000	847	2,973	May 12	Dec. 2	
1,733	b	2,417	c	1,541,676	e	30,286	124,734	315,224	e	407,772	61,091	46,666	25,756	609,752	17,761,000	945	2,102	May 8	Nov. 26	
1,099	b	2,451	c	1,439,216	e	21,800	91,575	355,117	e	1,349,738	243,542	39,971	63,188	16,767	568,082	987	2,506	May 2	Nov. 30	
1,476	b	2,567	c	1,607,136	e	23,394	91,856	244,669	e	1,872,940	204,674	14,892	63,580	22,639	555,790	650	2,751	Apr. 8	Dec. 3	
1,618	b	3,121	c	1,677,071	e	18,979	116,704	451,000	e	2,453,686	951,496	30,218	92,245	22,399	540,075	35,538,000	324	2,226	May 2	Dec. 3
1,735	b	3,503	c	1,734,890	e	25,766	170,501	623,880	e	2,105,029	2,547,148	46,791	77,916	21,753	677,073	44,639,000	66	2,255	Apr. 28	Nov. 15
2,117	b	4,004	c	2,092,757	e	19,685	101,260	309,991	e	250,090	54,381	43,989	18,396	493,406	5,391,000	847	2,973	May 7	Dec. 5	
2,739	b	4,774	c	2,468,088	e	29,256	4,0184	344,044	e	3,728,856	473,129	92,870	176,612	25,409	987,060	82,783,000	222	5,428	Apr. 21	Dec. 3
2,620	b	3,315	c	2,012,250	e	39,130	714,444	887,031	e	5,900,473	776,552	109,910	70,898	31,024	791,732	87,131,000	814	2,405	May 2	Dec. 11
3,009	b	5,689	c	2,997,837	e	44,214	706,379	1,248,243	e	11,985,791	517,103	72,428	144,894	36,062	1,190,071	122,389,000	9,381	6,047	Apr. 23	Dec. 10
3,352	b	5,380	c	3,035,537	e	36,147	694,991	1,440,003	e	15,274,213	422,981	60,842	130,355	31,827	1,235,122	127,984,000	6,669	6,189	May 6	Dec. 2
4,384	b	7,424	c	4,219,397	e	27,088	1,009,090	1,759,435	e	18,901,485	715,373	115,298	158,677	38,827	2,087,899	158,698,000	2,006	9,440	Apr. 25	Dec. 4
5,968	b	8,355	c	4,897,528	e	32,668	1,351,587	1,572,735	e	23,096,520	775,168	141,919	204,906	34,886	2,467,713	165,000,000	380	13,401	May 1	Dec. 2
5,305	b	7,903	c	5,130,659	e	25,558	2,105,041	2,190,725	e	18,586,351	2,022,318	63,703	210,431	38,990	2,270,517	220,772,000	3,385	33,541	May 7	Dec. 4
6,501	b	9,579	c	7,221,935	e	25,712	1,629,197	2,228,707	e	16,231,854	2,133,245	57,561	188,250	33,456	4,005,855	315,554,000	5,947	33,538	Apr. 15	Dec. 4
7,288	b	10,557	c	8,454,435	e	24,856	2,176,925	3,239,104	e	16,217,370	2,044,384	116,327	179,431	43,729	4,774,708	361,929,000	2,442	47,973	Apr. 20	Dec. 3
7,339	b	10,101	c	8,409,685	e	26,190	2,507,532	3,780,143	e	38,816,570	1,032,104	69,741	234,528	69,190	3,560,213	366,306,000	1,731	44,090	Apr. 27	Dec. 7
8,737	b	12,680	c	10,647,203	e	25,890	2,994,266	5,418,135	e	40,994,790	1,666,690	101,920	375,740	61,993	4,901,193	512,644,000	1,930	39,698	Apr. 18	Dec. 6

rd kept until 1864.
rd kept until 1870.

c No record kept until June, 1881.
d None shipped from Lake Superior until 1867.

e None shipped from Lake Superior until 1870.
f No record kept until 1881.



the wall is 10 feet wide, at which width it is carried up to within 6 inches of the top of the coping. The coping is five feet wide.

The walls are of limestone. The cut stone was obtained from Marblehead, Ohio, and Kelly's Island; the backing from Drummond's Island, Sainte Mary's river. The facing stones are laid in regular courses with a bond of $1\frac{1}{4}$ feet. There are 20 courses, each 2 feet thick, excepting the coping, which is $1\frac{1}{4}$ feet thick.

There are about 34,207 cubic yards of masonry, in the construc-

tion of which about 35,000 barrels of cement were used, every barrel being tested.

The water is let into the locks from culverts under the floor. These culverts extend from the upper to the lower end of the lock. The time consumed in filling or emptying the lock is about seven minutes.

The annexed tabular statement shows the business of the canal each year since its opening in 1855 to and including the traffic of 1892, with the date of the opening and closing of navigation:



THE LOCK OF 1887.

THE project of obtaining a navigable channel of 16 feet depth between Lakes Superior and Huron had barely been completed when the demands of commerce so enormously increased that the work of obtaining a depth of 20 feet throughout was undertaken, and work began upon the construction of the coffer-dam, which incloses the site of the new lock, May 4, 1887. The coffer-dam is 1,500 feet long and 300 feet wide, and the estimated cost was \$195,392.

This lock is being constructed upon the site of the old state locks, to have a length of 800 feet between gates, a width of 100 feet throughout, a depth of 21 feet on the miter sills, and a single lift, approximating 18 feet. The canal is now being deepened to correspond. The estimated cost of this enlargement of the canal system is \$4,738,865.

March 1, 1889, Collins & Farwell of Detroit, were awarded the contract for excavating the lock pit and began their work in April, 1889.

February 9, 1891, Hughes Bros. & Bangs of Syracuse, N. Y., were awarded the contract for the masonry construction and began work in May, 1891.

The first stone was laid without ceremony September 2, 1891. It is expected that this lock—the largest in the world—will be completed and ready to operate in 1894.

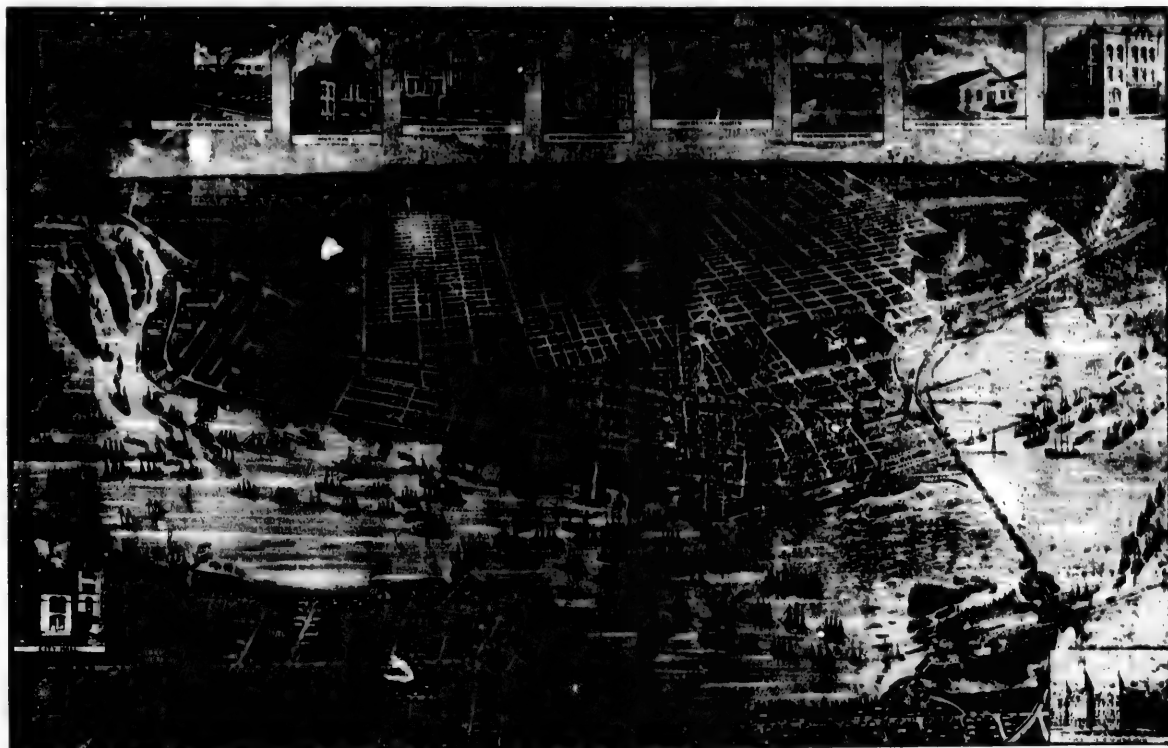
From the preliminary survey to the present time the local charge of this work has been in the hands of Col. E. S. Wheeler, assistant engineer and general superintendent of St. Mary's Falls canal, to whom much credit is due for the admirable manner in which the work has been done and the excellent progress made.

HAY LAKE CHANNEL.

BEFORE improvements were commenced, the channel through Hay Lake was shallow in depth at Sugar Island Rapids and at the Middle Neebish; at these two places a maximum draught of but eight or nine feet could be carried if a very irregular course was taken, and practically, vessels drawing more than six feet of water would not attempt the passage. In addition to the places above mentioned, there were some shoals in Hay Lake requiring removal to make the channel available for the vessels navigating the St. Mary's river. The original estimate for this improvement was based upon a project for a channel 300 feet wide and 17 feet deep, leaving the present navigable channel of St. Mary's river at Sugar Island Rapids (about two and a half miles below the canal), through these into Hay Lake and then, by way of the Middle Neebish, rejoining the present navigable channel at the foot of Sugar Island, thus saving a distance of eleven miles and obtaining a route which can be so marked by lights as to be navigable at night—a condition impracticable with the present channel except by the use of many lights. The estimated cost of this project was \$2,127,292. The project was subsequently modified to increase the depth to 20 feet, the estimated cost being \$2,659,115, subject to change, however, in case unexpected difficulties are developed during the progress of the work.

This work, as well as the building of the new lock at the canal, is in charge of Gen. O. M. Poe of the United States engineers, while Col. E. S. Wheeler, assistant United States engineer and general superintendent of the canal and river work, has the personal supervision.

The work upon this channel is well advanced and progressing nicely.



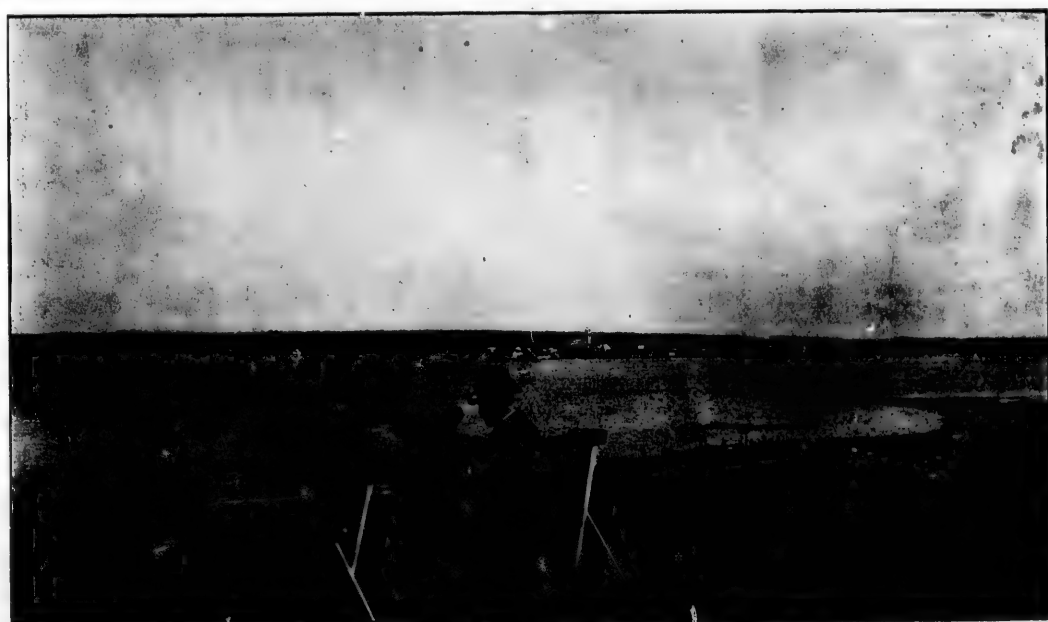
BIRD'S-EYE VIEW OF THE SOO.



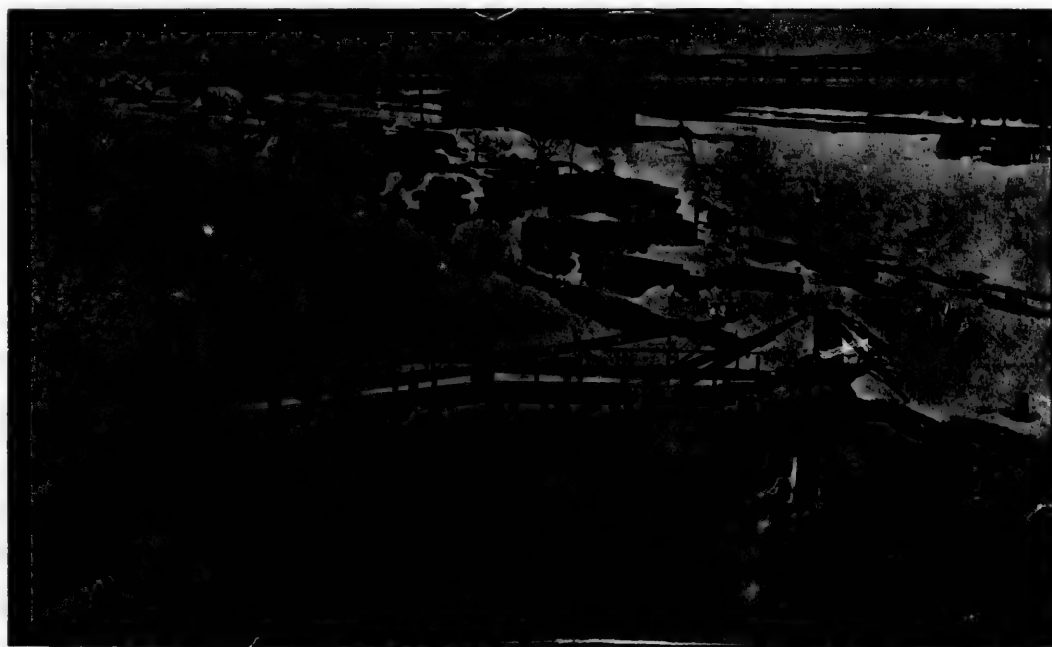
DRILL AT FORT BRADY.



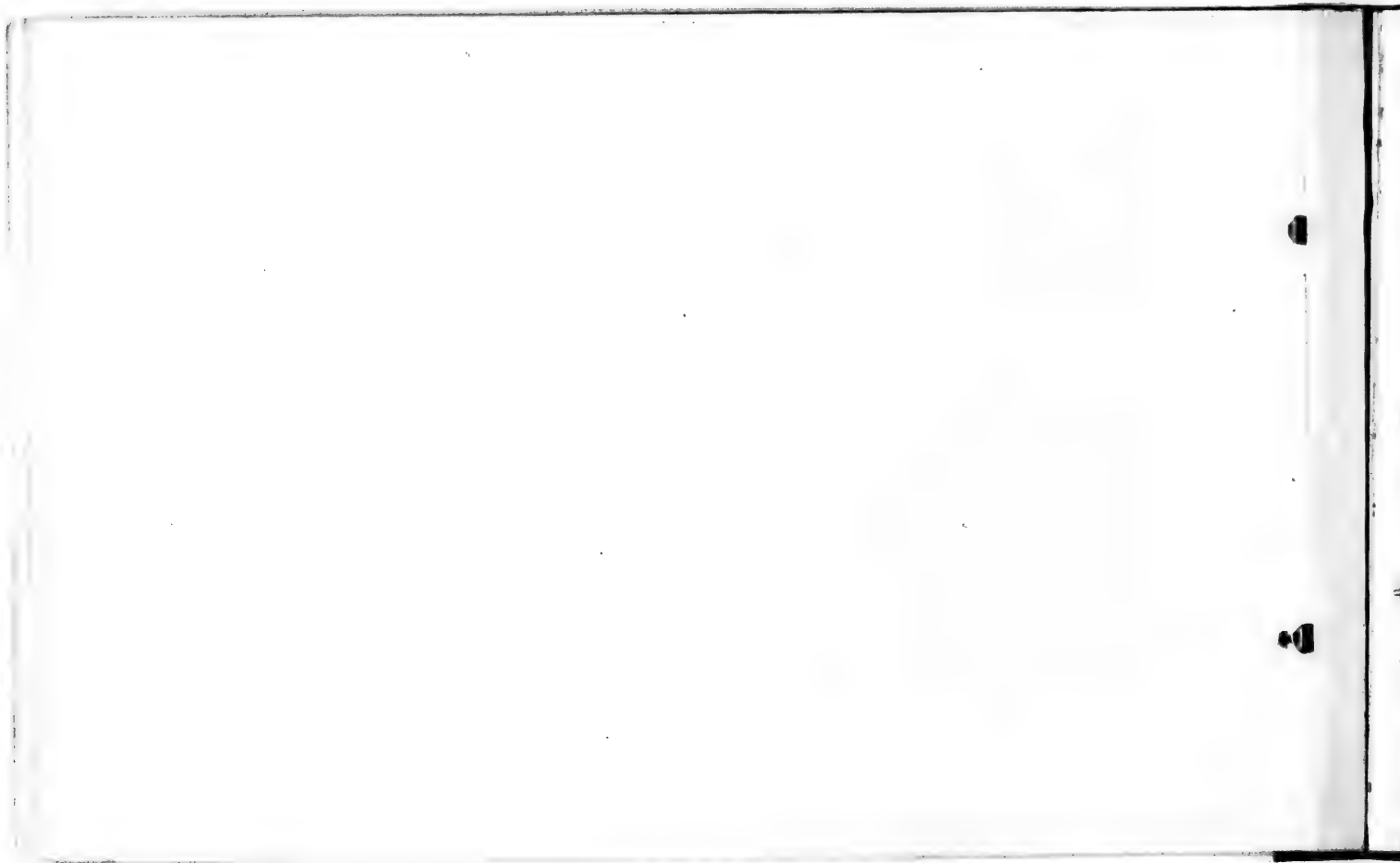
ARTILLERY DRILL-FORT BRADY



CANADIAN SOO, FROM FORT BRADY.



WINTER VIEW OF OLD STATE LOCK.





FLEET ENTERING LOWER GATE.



EMPTYING THE LOCK.

D

D



LAKE SUPERIOR TRANSIT LINER ENTERING LOCK.

W. T. FREE, PRES.

1

2



VESSEL LEAVING THE UPPER GATE.

11

12



THE PEERLESS LOOKING DOWN.



VESSEL LOWERED, READY TO LEAVE.

0

0



LOOKING THE WETMORE-PACIFIC OCEAN WHALEBACK LINER.





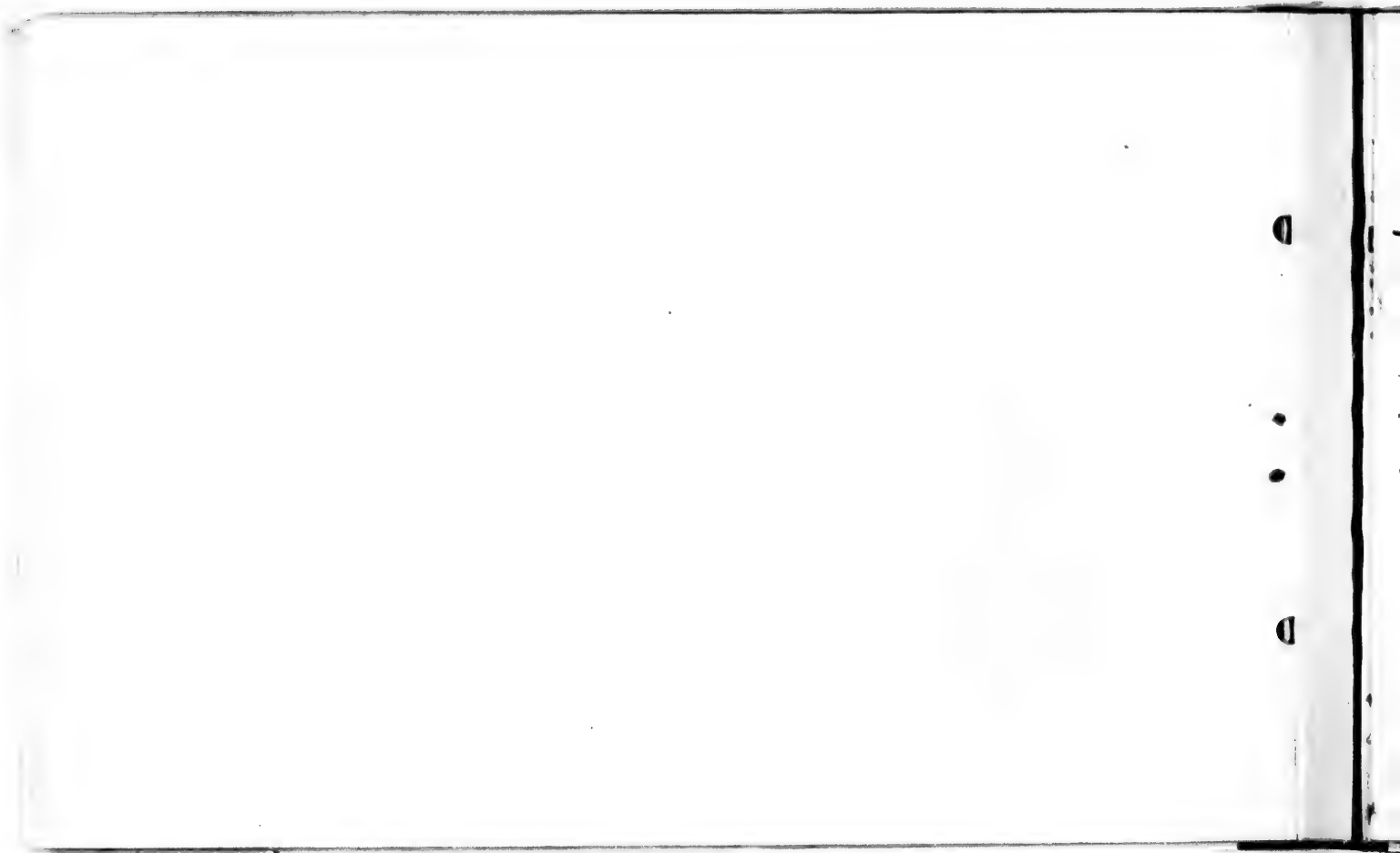
A PAIR OF WHALEBACKS WAITING TO LOAD THROUGH.

1

2



FOUNTAIN-CANAL PARK.





VIEW OF CANAL PARK.

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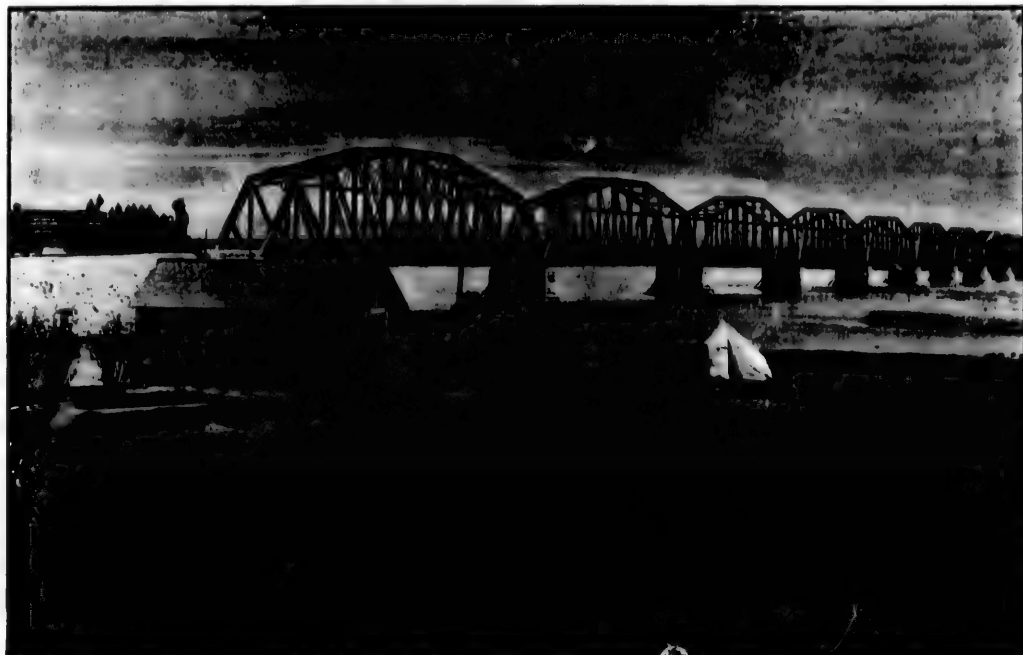
CANADIAN PACIFIC R. R. STEAMER.

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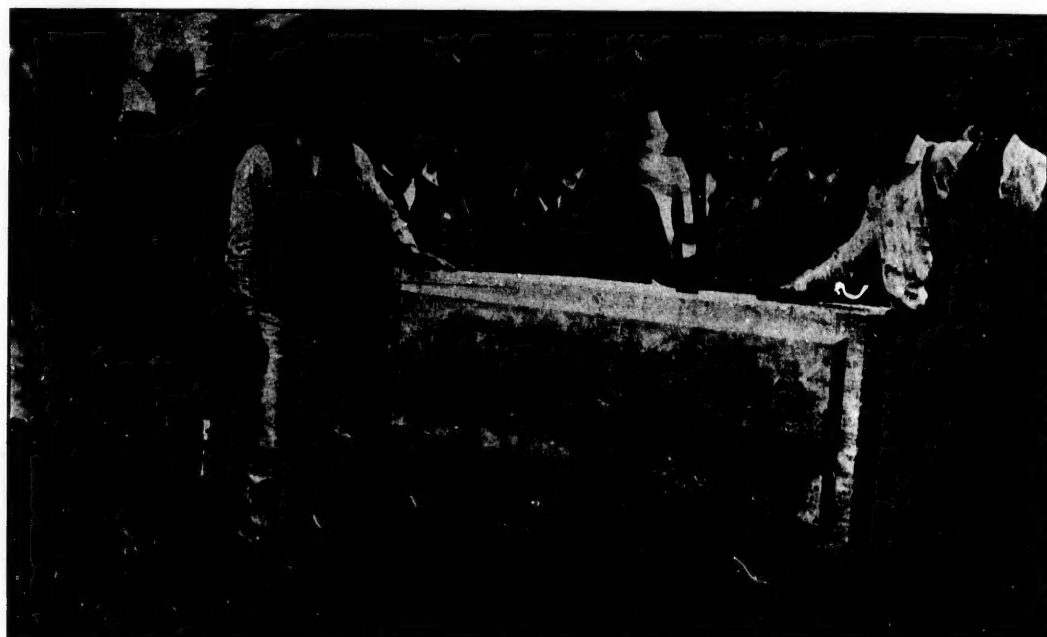
VIEW OF INTERNATIONAL BRIDGE.

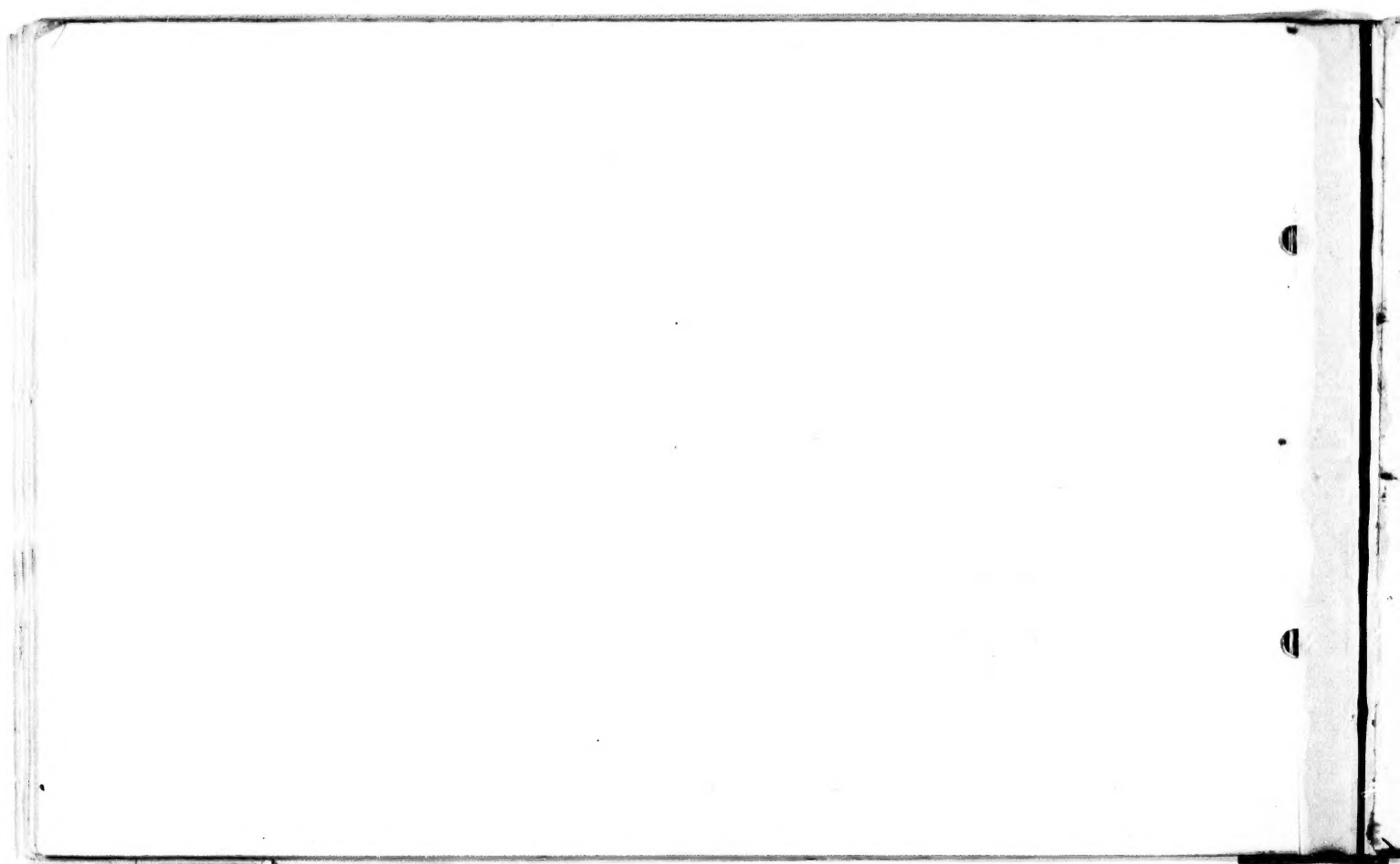


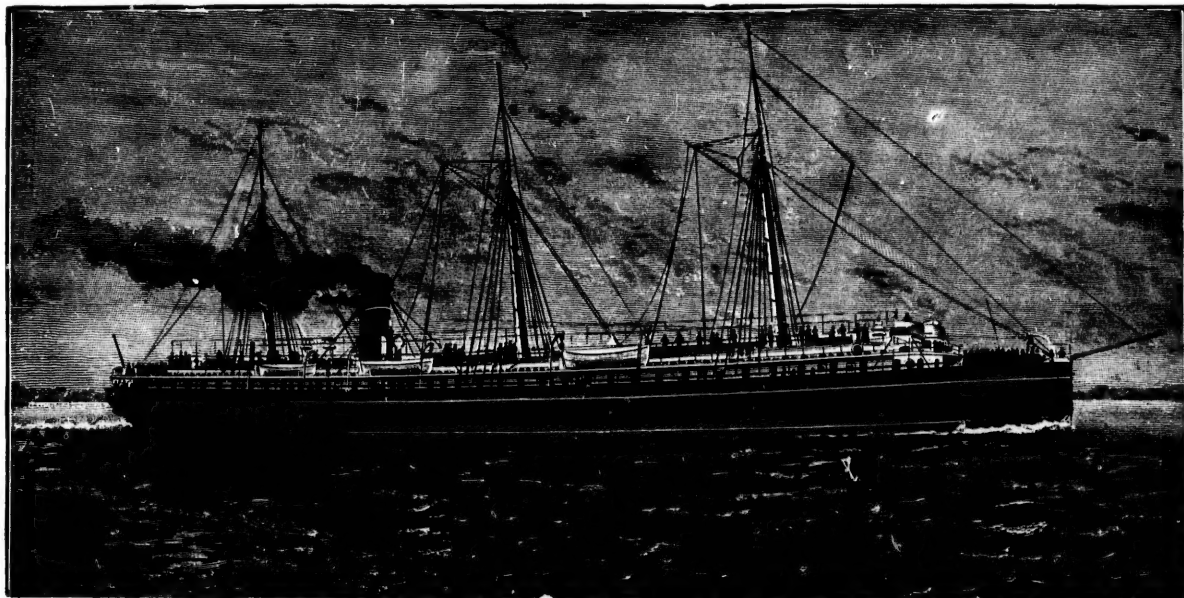
INDIANS FISHING IN THE RAPIDS.

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CANADIAN PACIFIC R. R. STEAMER MANITOBA.

